

CLAIMS:

1. A drive mechanism for positioning a telescope coupled with a mount movable about at least one axis, the drive mechanism comprising:

an axial shaft defining the axis;

5 a drive gear centered about the axial shaft;

a drive motor for driving the drive gear; and

a clutch mechanism for engaging the drive motor when moving the mount using the drive motor and for disengaging the drive motor when moving the mount manually, thereby avoiding damage to the drive motor.

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2. The drive mechanism as set forth in claim 1, wherein the clutch mechanism includes a low friction material interposed between the drive gear and the mount, wherein the low friction material provides sufficient friction to engage the drive gear with the mount when moving the mount using the drive motor but slips to  
15 disengage the drive gear from the mount when moving the mount manually.

3. The drive mechanism as set forth in claim 2, further including at least three raised contact points supporting the drive gear, wherein the low friction material is interposed between the drive gear and the raised contact points.

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4. The drive mechanism as set forth in claim 1, further including one or more spring elements associated with the axial shaft and providing compression on the drive gear to assist in proper operation of the clutch mechanism.

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5. A drive mechanism for positioning a telescope coupled with a mount movable about at least one axis, the drive mechanism comprising:

an axial shaft defining the axis;

5 a drive gear centered about the axial shaft and positioned between a first mount structure and a second mount structure, wherein the first mount structure presents at least three raised contact points for supporting the drive gear;

a first instance of low friction material interposed between the drive gear and the raised contact points and affixed to the drive gear;

10 a second instance of low friction material interposed between the drive gear and the second mount structure and affixed to the second mount structure; and

a drive motor for driving the drive gear,

15 wherein when the drive motor is active the first instance of low friction material slips over the raised contact points, and wherein when the mount is moved manually the second instance of low friction material slips over the second mount structure and thereby effectively disengages the drive motor from the mount, and wherein when the moving mount encounters an obstruction both the first and second  
20 instances of low friction material slip.

6. The drive mechanism as set forth in claim 5, further including one or more spring elements associated with the axial shaft and providing compression on the drive gear, first and second mount structures, and first and second instances of  
25 low friction material to assist in proper operation.

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7. A drive mechanism for positioning a telescope coupled with a mount movable about at least one axis, the drive mechanism comprising:

an axial shaft defining the axis;

5 a drive gear centered about the axial shaft and positioned between a first mount structure and a second mount structure, wherein the first mount structure presents at least three raised contact points for supporting the drive gear;

a first instance of low friction material interposed between the drive gear and the raised contact points and affixed to the drive gear;

10 a second instance of low friction material interposed between the drive gear and the second mount structure and affixed to the second mount structure; and

a drive motor for driving the drive gear;

15 one or more spring elements associated with the axial shaft and providing compression on the drive gear, first and second mount structures, and first and second instances of low friction material to assist in proper operation,

20 wherein when the drive motor is active the first instance of low friction material slips over the raised contact points, and wherein when the mount is moved manually the second instance of low friction material slips over the second mount structure and thereby effectively disengages the drive motor from the mount, and wherein when the moving mount encounters an obstruction both the first and second instances of low friction material slip.

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8. A mount for supporting a telescope, wherein the mount is movable about an axis, the mount comprising:

a drive mechanism for moving the mount about the axis, the drive mechanism including -

5 an axial shaft defining the axis;

a drive gear centered about the axial shaft;

a drive motor for driving the drive gear; and

10 a clutch mechanism for engaging the drive motor when moving the mount using the drive motor and for disengaging the drive motor when moving the mount manually, thereby avoiding damage to the drive motor.

9. The mount as set forth in claim 8, wherein the clutch mechanism includes a low friction material interposed between the drive gear and the mount,  
15 wherein the low friction material provides sufficient friction to engage the drive gear with the mount when moving the mount using the drive motor but slips to disengage the drive gear from the mount when moving the mount manually.

10. The mount as set forth in claim 9, further including at least three raised  
20 contact points supporting the drive gear, wherein the low friction material is interposed between the drive gear and the raised contact points.

11. The mount as set forth in claim 8, further including one or more spring elements associated with the axial shaft and providing compression on the drive gear  
25 to assist in proper operation of the clutch mechanism.

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12. A telescope system comprising:  
a telescope;  
a mount adapted to support the telescope, wherein the mount is movable  
about at least an azimuth axis and an altitude axis;  
5 a first drive mechanism for moving the mount about the azimuth axis, the first  
drive mechanism including -  
a first axial shaft defining the azimuth axis,  
a first drive gear centered about the first axial shaft,  
a first drive motor for driving the first drive gear, and  
10 a first clutch mechanism for engaging the first drive motor when  
moving the mount using the first drive motor and for  
disengaging the first drive motor when moving the mount  
manually, thereby avoiding damage to the first drive  
motor; and  
15 a second drive mechanism for moving the mount about the altitude axis, the  
second drive mechanism including -  
a second axial shaft defining the azimuth axis,  
a second drive gear centered about the second axial shaft,  
a second drive motor for driving the second drive gear, and  
20 a second clutch mechanism for engaging the second drive  
motor when moving the mount using the second drive  
motor and for disengaging the second drive motor when  
moving the mount manually, thereby avoiding damage to  
the second drive motor.

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13. The telescope system as set forth in claim 12, wherein the first and  
second clutch mechanisms each include a low friction material interposed between  
their respective first or second drive gear and the mount, wherein the low friction  
material provides sufficient friction to engage the respective first or second drive gear  
30 with the mount when moving the mount using the respective first or second drive  
motor but slips to disengage the respective first or second drive gear from the mount  
when moving the mount manually.